AI Planning
Exercise Sheet 3

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Exercise 3.1

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Exercise 3.2

(d=dancing, h=at-home, w=work, ro=romeo, ju=juliet)
We start at: $\gamma = ju\text{–}d \wedge ro\text{–}h$
We want to reach: $I = \{ro\text{–}h \mapsto 1, ju\text{–}h \mapsto 1\}$
Operators: *go–d*, *go–w*, *go–h*

$$
\begin{aligned}
regr_{go\text{–}w}(\gamma) &= ro\text{–}h \wedge \\
&\quad ((EPC_{ju\text{–}d}(e_{go\text{–}w}) \vee (ju\text{–}d \wedge \neg EPC_{\neg ju\text{–}d}(e_{go\text{–}w}))) \wedge \\
&\qquad (EPC_{ro\text{–}h}(e_{go\text{–}w}) \vee (ro\text{–}h \wedge \neg EPC_{\neg ro\text{–}h}(e_{go\text{–}w}))) \\
&\quad) \wedge \kappa \\
regr_{go\text{–}w}(\gamma) &= ro\text{–}h \wedge \\
&\quad ((\bot \vee (ju\text{–}d \wedge \top)) \wedge \\
&\qquad (\bot \vee (ro\text{–}h \wedge \bot)) \\
&\quad) \wedge \kappa \\
regr_{go\text{–}w}(\gamma) &= \bot
\end{aligned}
$$

$$regr_{go\text{–}d}(\gamma) = ju\text{–}h \wedge$$